

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An olefin polymerization catalyst comprising:

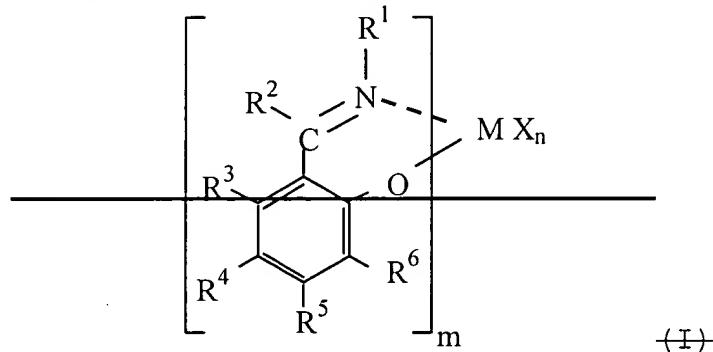
(A) a transition metal compound represented by the following formula (I), and

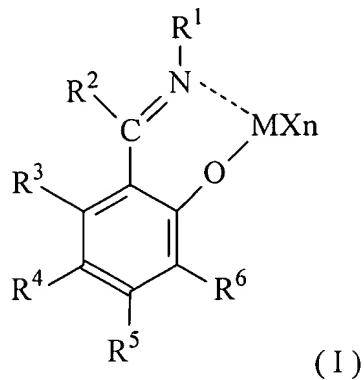
(B) at least one compound selected from the group consisting of:

(B-1) an organometallic compound,

(B-2) an organoaluminum oxy-compound, and

(B-3) a compound which reacts with the transition metal compound (A) to form an ion pair:





wherein M is a transition metal atom selected from the group consisting of Groups 3-7 and 11 of the periodic table,

m is 1,

R¹ to R⁶ may be are the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a heterocyclic compound residue, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a silicon-containing group, a germanium-containing group or a tin-containing group, and two or more of them may be bonded to each other to form a ring,

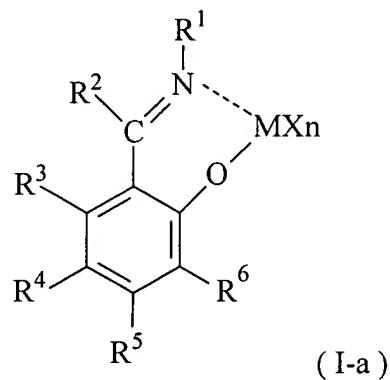
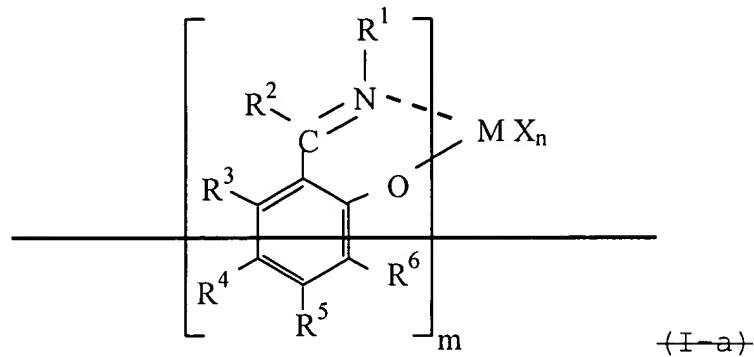
when m is 2 or greater, two of the groups R¹ to R⁶ may be bonded to each other, with the proviso that the groups R¹ are not bonded to each other,

n is a number satisfying a valence of M making (I) electrically neutral, and

X is a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups X ~~may be~~ are the same or different and may be bonded to each other to form a ring.

2. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein R⁶ in the formula (I) is a halogen atom, a hydrocarbon group, a heterocyclic compound residue, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a silicon-containing group, a germanium-containing group or a tin-containing group.

3. (Currently Amended) The olefin polymerization catalyst as claimed in claim 1, wherein the transition metal compound represented by the formula (I) is a transition metal compound represented by the following formula (I-a):



wherein M is a transition metal atom selected from the group consisting of Groups 3-7 and 11 of the periodic table,

m is 1,

R¹ to R⁶ may be are the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a heterocyclic compound residue, a hydrocarbon-substituted silyl group, a hydrocarbon-substituted siloxy group, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, an acyl group, an ester group, a thioester group, an amido group, an imido group, an amino group, an imino group, a sulfonester group, a sulfonamido group, a

cyano group, a nitro group, a carboxyl group, a sulfo group, a mercapto group or a hydroxyl group, and two or more of them may be bonded to each other to form a ring,

~~when m is 2 or greater, two of the groups R¹ to R⁶ may be bonded to each other, with the proviso that the groups R¹ are not bonded to each other,~~

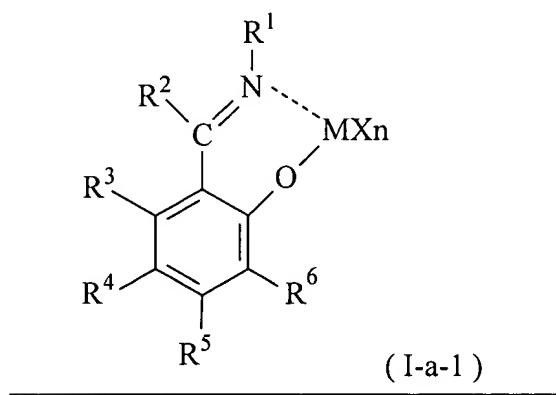
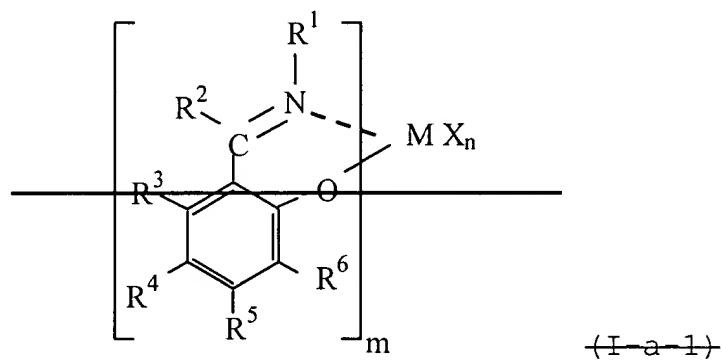
n is a number satisfying a valence of M making (I) electrically neutral, and

X is a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups X ~~may be~~ are the same or different and may be bonded to each other to form a ring.

4. (Original) The olefin polymerization catalyst as claimed in claim 3, wherein R⁶ in the formula (I-a) is a halogen atom, a hydrocarbon group, a heterocyclic compound residue, a hydrocarbon-substituted silyl group, a hydrocarbon-substituted siloxy group, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, an acyl group, an ester group, a thioester group, an amido

group, an imido group, an amino group, an imino group, a sulfonester group, a sulfonamido group, a cyano group, a nitro group, a carboxyl group, a sulfo group, a mercapto group or a hydroxyl group.

5. (Currently Amended) The olefin polymerization catalyst as claimed in claim 1, wherein the transition metal compound represented by the formula (I) is a transition metal compound represented by the following formula (I-a-1):



wherein M is a transition metal atom selected from the group consisting of Groups 3-7 and 11 of the periodic table,

m is 1,

R¹ to R⁶ may are be the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a heterocyclic compound residue, a hydrocarbon-substituted silyl group, a hydrocarbon-substituted siloxy group, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, an acyl group, an ester group, a thioester group, an amido group, an imido group, an amino group, an imino group, a sulfonester group, a sulfonamido group, a cyano group, a nitro group or a hydroxyl group, and two or more of them may be bonded to each other to form a ring,

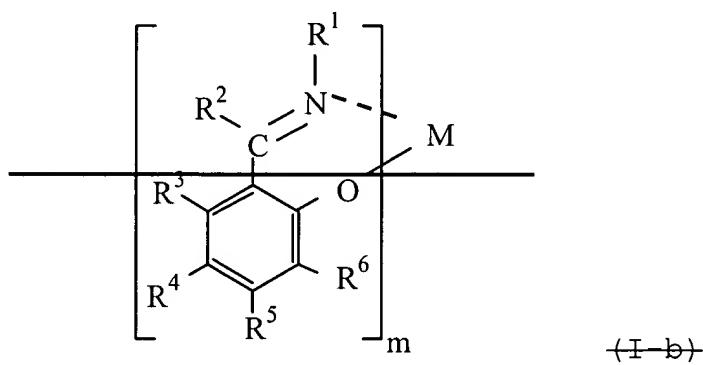
when m is 2 or greater, two of the groups R¹ to R⁶ may be bonded to each other, with the proviso that the groups R¹ are not bonded to each other,

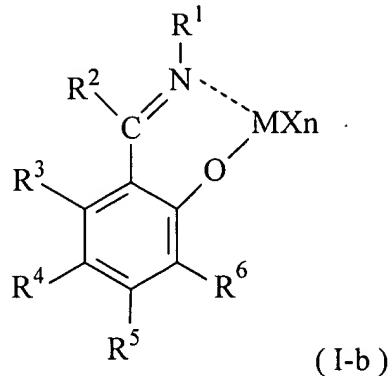
n is a member satisfying a valence of M is a number making (I) electrically neutral, and

X is a hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, an oxygen-containing group, a sulfur-containing group or a silicon-containing group, and when n is 2 or greater, plural groups X may be are the same or different and may be bonded to each other to form a ring.

6. (Original) The olefin polymerization catalyst as claimed in claim 5, wherein R⁶ in the formula (I-a-1) is a halogen atom, a hydrocarbon group, a heterocyclic compound residue, a hydrocarbon-substituted silyl group, a hydrocarbon-substituted siloxy group, an alkoxy group, an alkylthio group, an aryloxy group, an arylthio group, an acyl group, an ester group, a thioester group, an amido group, an imido group, an amino group, an imino group, a sulfonester group, a sulfonamido group, a cyano group, a nitro group or a hydroxyl group.

7. (Currently Amended) The olefin polymerization catalyst as claimed in claim 1, wherein the transition metal compound represented by the formula (I) is a transition metal compound represented by the following formula (I-b):





wherein M is a transition metal atom selected from the group consisting of Groups 3-7 and 11 of the periodic table,

~~m is 1,~~

~~R¹ to R⁶ may be are~~ the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a hydrocarbon-substituted silyl group, an alkoxy group, an aryloxy group, an ester group, an amido group, an amino group, a sulfonamido group, a cyano group or a nitro group, and two or more of them may be bonded to each other to form a ring, and when ~~m is 2 or greater, two of the groups R¹ to R⁶ may be bonded to each other, with the proviso that the groups R¹ are not bonded to each other.~~

8. (Original) The olefin polymerization catalyst as claimed in claim 5, wherein R⁶ in the formula (I-b) is a halogen atom, a hydrocarbon group, a hydrocarbon-substituted silyl group, an alkoxy

group, an aryloxy group, an ester group, an amido group, an amino group, a sulfonamido group, a cyano group or a nitro group.

9. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 3 of the periodic table.

10. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 4 of the periodic table.

11. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 5 of the periodic table.

12. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 6 of the periodic table.

13. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 7 of the periodic table.

14. (Original) The olefin polymerization catalyst as claimed in claim 1, wherein M in the transition metal compound (A) is a transition metal atom selected from Group 11 of the periodic table.

15. (Withdrawn) A method for polymerizing olefin using the olefin polymerization catalyst as claimed in any one of claims 1 to 14.

Amendment dated November 25, 2003
Response to office Action of August 25, 2003

Appl. No. 09/942,706

AMENDMENTS TO THE DRAWINGS

Attached hereto are two (2) sheet(s) of proposed corrected formal drawings that comply with the provisions of 37 C.F.R. § 1.84. The corrected formal drawings incorporate the following drawing changes:

In Figs. 1 and 2 the word "organoaluminium" has been corrected to read --organoaluminum--.

It is respectfully requested that the proposed corrected formal drawings be approved. Formally amended drawings will follow.